9.3130,24.2000

77305
SOV/57-30-2-2/18

AUTHORS: Strel'nikov, P. I., Fedorenko, A. I.

TITLE: Investigation of Focusing Properties of a Paraboloidal
Magnetic Lens

ABSTRACT: The authors investigated experimentally the feasibility
of obtaining a strong convergent electric beam
utilizing a magnetic field, the magnetic induction of
which is, at any given point of the electron beam,
inversely proportional to the diameter of the beam.
The idea is due to Hines (see reference). The field
has a shape represented on Fig. 1.

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Investigation of Focusing Properties of
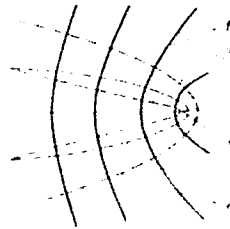a Paraboloidal Magnetic Lens

Fig. 1. Shape of the magnetic field. (1) Equipoten-
tials; (2) cone of beam; (3) focal point; (4)
field lines.

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The needed magnetic field can be obtained using pole
shoes shaped as paraboloids of rotation. Construction
details are given on Fig. 2.

Investigation of Focusing Properties of
a Paraboloidal Magnetic Lens
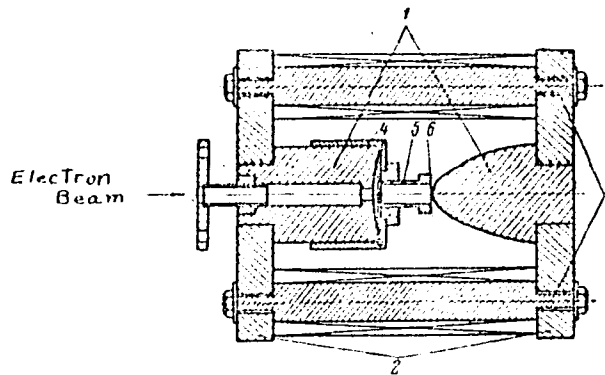
773 0
SOV 57-30-2-2/18

Electron
Beam

Fig. 2.   Diagram of the paraboloidal magnetic lens.
(1) Pole shoes; (2) plate yoke; (3) rods with magnetiz-
ing coils; (4) vacuum chamber; (5) cylinder for
measurements; (6) tantalum foil.

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Investigation of Focusing Properties of   (750)
a Paraboloidal Magnetic Lens   SOV/57-30-2-2/18

The four magnetizing coils contained 10,000 ampere-turns each. The field along the symmetry axis in the gap between the pole shoes was measured by means of a ball fluxmeter. The results are on Fig. 3.
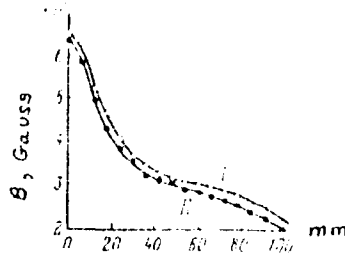

Fig. 3. Magnetic field distribution in the gap between the pole shoes along the symmetry axis. (I) Without the channel in the pole shoe; (II) with the channel.

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Investigation of Focusing Prop... of   773...
a Paraboloidal Magnetic Lens   SOV/57-30-2-2/18

Convergent and divergent electron beams were produced
using tungsten cathode impulse electron guns with 2
μsec impulse duration, one burst per second.
Beyond the anode the current in the beam was 10 a
and more, at $2\text{--}5 \cdot 10^{-6}$ mm Hg. The electron beam
entered the magnetic lens at a distance of 1.5 m
from the electron gun. The cording of the beam was
achieved by having a photographic film behind the
0.1 mm tantalum foil (see Fig. 2). The electron beam
striking the foil produces X-rays, which in turn
leave a trace on the film. Results of the tests are
presented on Fig. 3.

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Investigation of Focusing Properties of
a Paraboloidal Magnetic Lens

SOV/57-30-2-2/10
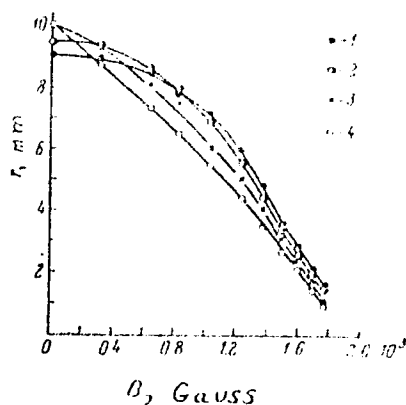

Fig. 5.   Variation of the size of the beam picture
versus the magnetic field.   (1) Case of a convergent
beam with a 1°40' angle of convergence; (2) case of a
convergent beam with a 2°10' angle of convergence;
(3) case of a parallel beam; (4) case of a divergent
beam with a 3°5' angle of divergence.

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Investigation of Focusing Properties of   7730
a Paraboloidal Magnetic Lens   SOV/57-30-2-2/18

On the basis of these results, the authors conclude
that it is possible to form conical electron beams
by means of paraboloidal magnetic lenses. Using
optimal conditions the beam can be narrowed to 1
mm diameter bringing currents up to 0.8 a/mm^2
The beam entering the magnetic lens need not be
convergent. There are 6 figures; and 1 U.S. reference.
The U.S. reference is: M. E. Hines, Proc. IRE, 40,
1, 61, 1952.

ASSOCITION: Physico-Technical Institute AS UkrSSR Khar'kov
              (Fiziko-tekhnicheskiy institut AN USSR Khar'kov)

SUBMITTED: August 14, 1959

Card 7/7

9, 3140 (2301, 1140, 1141)
26.2322

S/057/61/031/004/002/018
B125/B205

AUTHORS: Strel'nikov, P. I., Fedorenko, A. I., and Chernyy, B. I.

TITLE: Focusing of extended intense electron beams by additional
            periodic magnetic and electric fields

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 4, 1961, 394-399

TEXT: An experimental study has been made of a focusing system, in which
the simultaneous action of magnetic and electric fields permits the focus-
ing channeling of intense electron beams of constant diameter at large
distances from the cathode. The energy loss involved is insignificant.
The first part deals with a parallel electron beam in additional electric
and magnetic fields. First, a brief description is given of the dynamics
of the beam: When the cathode is located in a homogeneous, axisymmetric
magnetic field, the angular velocity of the outcoming electrons according

to the theorem of Bush is given by $\dot{\vartheta} = -\frac{\eta}{2}\left(B_0 - B_k\frac{r_k^2}{r^2}\right)$ (1), where

η symbolizes the charge-to-mass ratio of electrons, B_0 the strength of

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S/057/61/031/004/002/018
B125/B205

Focusing of extended intense ...

the longitudinal field on the radius r, B_k the value of B_0 at $\vartheta = 0$

(on the cathode), and r_k the radius of the electron beam leaving the

cathode. The further motion of the electrons in axisymmetric magnetic
and electric fields with regard to the forces produced by these fields
and the space charge of the beam is expressed by

$$r'' + \frac{v'}{2v} r' + \left[\frac{v''}{4v} + \frac{\eta}{8v} \left(B_z^2 - \frac{r_k^4}{r^4} B_k^2 \right) \right] r - \frac{J}{4\sqrt{2}\,\pi\varepsilon_0\eta^{1/2}v^{1/2}r} = 0. \qquad (2)$$

(2).

r denotes the distance of the given electron from the axis, r' its first
and r" its second derivative with respect to z; J is the current strength
of the beam along the chosen path, and ε_0 is the dielectric constant of
the vacuum. A parallel electron beam of radius r_0 = const must satisfy

the condition

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$$\left[\frac{v''}{4v}+\frac{\eta}{8v}\left(B_z^2-\frac{r_k^4}{r^4}B_k^2\right)\right]v'^{\frac{1}{2}}=\frac{J}{4\sqrt{2}\,\pi\epsilon_0\eta^{\frac{1}{2}}r_0^2}. \qquad (3)$$

B_z and v may be any arbitrary functions of z which satisfy the condition $v'' + \frac{\eta}{2}B_z^2 = $ const on slight variations of the potential v. The focusing system is calculated next: If the cathode is not screened, the magnetic field within the electron beam must satisfy the conditions

$$B_0^2 = B_k^2\frac{r_k^4}{r_0^4} + B_\delta\frac{r_k^2}{r_0^2} \qquad (4) \quad \text{and} \quad B_\delta = \frac{\sqrt{2}\,J}{\pi\epsilon_0\eta^{3/2}v^{1/2}r_0^2} \qquad (5) \quad \text{if the}$$

transverse components of the thermal electron velocities are taken into account. Here, B_δ is the Brillouin field strength at a distance r_0 from the axis. In the case of Brillouin focusing, the magnetic field is 40% larger than B_δ. The electron beam emerging from the region of

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acceleration enters the region of action of the magnetic and the electric field. If the potential v of the electric field varies along the z-axis according to the rule $v = v_0 + \Delta v \cos \frac{2\pi}{L} z$ at $v_0 \gg \Delta v$ (L - period of the focusing system along the z-axis), then the magnetic field required for producing a parallel electron beam is given by $B_z = \sqrt{2} B_0 \cos \frac{\pi}{L} z$. Thus, the electric field varies twice during a period of the magnetic field. A special magnetic matcher in the intermediary region is needed for leading the beam out of the region of acceleration. Fig. 1 shows the distribution of magnetic and electric fields throughout the focusing system. In the additional fields, the electron beam will be more stable in the presence of a single periodic electric field. In this case, there are neither any ranges of instability nor pulsations of the beam. The second part of the present paper is devoted to the experimental study of the focusing system. The initial shaping of the electron beam is done with the aid of a three-electrode electron gun equipped with a tungsten cathode in the form of a conical spiral of 10 mm diameter, which warrants a parallel electron beam. This electron gun supplied pulses of

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a duration of 2 μsec. The amperage in the electron beam increased to 10 a and more, and the accelerating voltage amounted to 100 kv. A pressure of 2 - 3.10^{-6} mm Hg was observed inside the device while in operation. The periodic magnetic field with the root-mean-square field strength of 586 oe and the period 5.6 cm was generated by a system of short screening coils of opposite polarity (arranged along a common axis). The periodic electric field with the period 2.8 cm was generated by a set of disks alternately connected to a positive and a negative potential of 1500 v (cf. Fig. 2). The beam was examined and measured by means of a mobile fluorescent screen. The longitudinal magnetic field (strength: 415 oe) in the range of the electron gun was produced by a special solenoid, and also a focusing magnetic matcher was available. Under the optimum conditions of focusing, the diameter of the beam could be kept constant at 10 mm over the whole distance between cathode and collector. Thus, a 98% passage of the beam was guaranteed. The maximum passage of the beam could be warranted only if the numerical parameters were exactly maintained. There are 3 figures and 9 references: 1 Soviet-bloc and 8 non-Soviet-bloc. The two references to English-language publications read as follows: K. K. N. Chang, RCA Rev., 16. 1.,

Card 5/8

21536

Focusing of extended intense ...
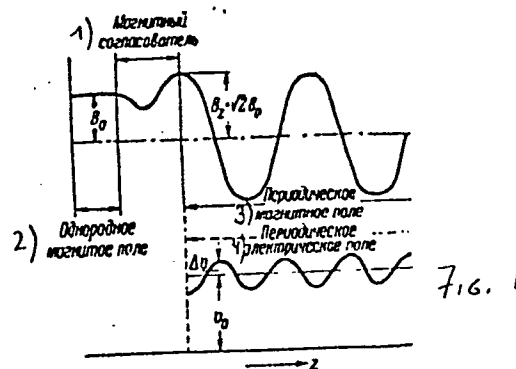
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65, 1955. K. K. N. Chang. Proc. I.R.E., 43, 1, 62, 1955.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR Khar'kov
               (Institute of Physics and Technology of the AS UkrSSR,
               Khar'kov)

SUBMITTED: June 29, 1960

Fig. 1

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L 10801-66   EWT(m)/EWP(w)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(h)

ACC NR: AT5023822 MJW/JD/GG/GS   SOURCE CODE: UR/0000/62/000/000/0374/0381

AUTHOR: Strel'nikov, P. I.; Fedorenko, A. I.; Klyucharev, A. P.

ORG: none

TITLE: Effect of irradiation with protons on the microhardness of iron and steel

SOURCE: Soveshchaniye po probleme Deystviye yadernykh izlucheniy na materialy. Moscow, 1960. Deystviye yadernykh izlucheniy na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Msocow, Izd-vo AN SSSR, 1962, 374-381

TOPIC TAGS: irradiation, proton irradiation, rion, carbon steel, microhardness, iron microhardness, carbon steel microhardness/U8 steel, U10 steel, U12 steel, armco iron

ABSTRACT: The effect of proton irradiation on the microhardness of iron and steel has been studied. Specimens of as-supplied Armco iron and of U8, U10, and U12 carbon steels with thicknesses much greater than the depth of proton penetration, were irradiated in vacuum at 60—80C with different integrated proton fluxes with energies between 0.89 and 1.4 Mev, and subjected to microhardness tests. It was found that irradiation with an integrated flux of 1.62 x 10¹⁹ proton/cm² at 1.25 Mev substantially increases the steel microhardness, especially in the layer close to the specimen surface. To determine the effect of the irradiation dosage on micro-hardness, U12 steel was irradiated with integrated fluxes of 4.12 x 10⁸ and

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ACC NR: AT5023822

2.36 x 10^{19} proton/cm^2 with a constant energy of 0.89 Mev. Experiments showed that microhardness rises with the increasing dose; however, a flux of 10^{18} or 10^{19} proton/cm^2 does not significantly raise the microhardness. The increase of proton energy linearly increased the microhardness of all tested steels, regardless of their carbon content. The irradiation of Armco iron produced similar results, but the increase of its microhardness was less pronounced than in the steels. The increase in microhardness caused by irradiation was found to be stable, and remained unchanged in U12 steel for 14 months. Irradiation with protons proved to be more effective than with neutrons, for protons do not change the microstructure of steel or iron. In the opinion of the authors, the improved microhardness is not only due to radiation damage, but also to the formation of a solid solution of atomic hydrogen with iron on steel components which occurs as the depth where protons stop after expending their energy. Orig. art. has: 6 figures and 3 tables. [ND]

SUB CODE: 13,20 SUBM DATE: 18Aug62/ ORIG REF: 004/ OTH REF: 007

STREL'NIKOV, P. I.

9C

PHASE I BOOK EXPLOITATION

SOV/6176

Konobeyevskiy, S. T., Corresponding Member, Academy of Sciences
 USSR, Resp. Ed.

Deystvive vadernykh izlucheniv na materialv (The Effect of
 Nuclear Radiation on Materials). Moscow, Izd-vo AN SSSR,
 1962. 383 p. Errata slip inserted. 4000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhni-
 cheskikh nauk; Otdeleniye fiziko-matematicheskikh nauk.

Resp. Ed.: S. T. Konobeyevskiy; Deputy Resp. Ed.: S. A.
 Adasinskiy; Editorial Board: P. L. Gruzin, G. V. Kurdyumov,
 B. M. Levitskiy, V. S. Lyashenko (Deceased), Yu. A. Martynyuk,
 Yu. I. Pokrovskiy, and N. F. Pravdyuk; Ed. of Publishing
 House: M. O. Makarenko; Tech. Eds: T. V. Polyakova and
 I. N. Dorokhina.

Card 1/14

9C

SOV/6176

The Effect of Nuclear Radiation (Cont.)

PURPOSE: This book is intended for personnel concerned with nuclear materials.

COVERAGE: This is a collection of papers presented at the Moscow Conference on the Effect of Nuclear Radiation on Materials, held December 6-10, 1960. The material reflects certain trends in the work being conducted in the Soviet scientific research orginization. Some of the papers are devoted to the experimental study of the effect of neutron irradiation on reactor materials (steel, ferrous alloys, molybdenum, avial, graphite, and nichromes). Others deal with the theory of neutron irradiation effects (physico-chemical transformations, relaxation of internal stresses, internal friction) and changes in the structure and proper-ties of various crystals. Special attention is given to the effect of intense γ-radiation on the electrical, magnetic, and optical properties of metals, dielectrics, and semiconductors.

Card 2/14

The Effect of Nuclear Radiation (Cont.)   SOV/6176

Starodubtsev, S. V., M. M. Usmanova, and V. M. Mikhaelyan.
Change in Certain Electrical Properties of Boron and Amorphous
Selenium Under the Action of γ-Irradiation   355

Starodubtsev, S. V., and Sh. A. Vakhidov. Luminescence of
Crystalline Quartz Subjected to UV- and γ-Rays   362

Starodubtsev, S. V., Sh. A. Ablyayev, and S. Ye. Yermatov.
Effect of γ-Ray Flux on Absorption Properties of Vacuum
Materials   366
    Change in absorptive properties of various silica
    gels and alumosilicates, subjected to γ-ray doses of
    150,000 to 350,000 r/h, were investigated.

Trinkler, E. I. Effect of γ-Irradiation on Permeability of
Some Ferrites   370

Strel'nikov, P. I., A. I. Fedorenko, and A. P. Klynoharev.
Effect of Proton Irradiation on Microhardness of Iron and
Steel   374

Card 13/14

STREL'NIKOV, R.

Trade unions in the people's Poland. Sov.profsoiuzy 3 no. 2:86-88
F '55.   (MIRA 8:4)
(Poland--Trade unions).

STREL'NIKOV, Rostislav Vladimirovich; FOKINA, G., red.; DANILINA, A.,
tekhn. red.

[Albania will become a flowering garden] Albaniia stanet
tsvetushchim sadom. Moskva, Gos.izd-vo polit.lit-ry, 1959.
93 p.   (MIRA 13:1)
              (Albania--Economic conditions)

STREL'NIKOV, S.

Continue to improve the technical equipment of commerce. Sov.
torg. no.12:29-31 D '58.   (MIRA 12:2)
                (Commerce--Equipment and supplies)

YERMOLOV, Viktor Veniaminovich; Prinimal uchastiye: STRELNIKOV, S.A.;
SOKOLOV, N.N., doktor geograf.nauk, red.

[Making medium-scale geomorphological maps in general geological
surveying of northern regions] Voprosy sostavleniia geomorfologi-
cheskikh kart pri srednemasshtabnoi kompleksnoi s"emke severnykh
raionov. Leningrad, 1958. 31 p. (Leningrad Nauchno-issledovatel'-
skii institut geologii Arktiki. Trudy vol.83)   (MIRA 12:6)
        (Siberia, Northern--Geology, Structural)
        (Arctic regions--Geology, Structrual)

STREL'NIKOV, S.I.

      Microstructure of the septal apparatus of some Silurian
      Tetracoralla. Paleot. zhur. no.3:10-17 '63.   (MIRA 16:10)

      1. Leningradskiy gosudarstvennyy universitet.

FADEICHEV, Anatoliy Nikolayevich; STRELNIKOV, Sergey Ivanovich

[City of Donskoy] Gorod Donskoi. Tula, Priokskoe knizhnoe izd-vo, 1964. 75 p.   (MIRA 18:7)

STREL'NIKOV, S.I.

Find of Diplochone (Rugosa) in the Silurian of the
subarctic Ural Mountain region. Paleont. zhur. no. 1:
132-134   '64.   (MIRA 17:7)

1. Leningradskiy gosudarstvennyy universitet.

STRELNIKOV, ...

Part of the family Kodonophyllidae (Rugosa). Paleont. zhur.
no.4:... '58.   (MIRA 18:3)

1. Leningradskiy gosudarstvennyy universitet.

ZASLAVSKIY, Yefim Grigor'yevich, Inzh.; PORTNOY, Vladimir Isaakovich,
Inzh.; KOSHEVOY, Vladimir Ivanovich, Inzh.; DUBROVSKIY,
Vladimir Zakharovich, Inzh.; KELAROV, A.F., Inzh.,
retsenzent; STREL'NIKOV, S.V., Inzh., retsenzent; MEL'NIKOV,
V.Ye., red.

[Repair of TE10 diesel locomotives in the roundhouse] Re-
mont teplovozov TE10 v depo. Moskva, Transport, 1965. 90 p.
(MIRA 18:2)

1. Khar'kovskiy teplovozostroitel'nyy zavod imeni
V.A.Malysheva (for Zaslavskiy, Portnoy, Koshevoy, Dubrovskiy).

STREL'NIKOV, V. (Ryazan')

Methods of comparing variants of projected solutions. Vop.ekon.
no.5:142-145 My '59.   (MIRA 12:9)
               (Capital investments)

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(MIRA 17:12)

STREL'NIKOV, V.N., inzhener (g. Ryazan'); TABRIS, S.E.

Readers on the subject of books. Shortcomings in a good hand-
book. ("Handbook for railroad engineers and section foremen."
S.D. Povarenkov. Reviewed by V.N. Strel'nikov, S.E. Tabris).
Put' i put. khoz. no.5:47-48 My '57.   (MIRA 10:6)
                    (Railroads--Maintenance and repair)

STREL'NIKOV, V.N., inzh. (Ryazan').

New textbook for track services technical schools ("Organization, maintenance and repair of railroad track." M.A. Chernyshev. Reviewed by V.N. Strel'nikov). Put' i put. khoz. no.1:48 Ja '58. (MIRA 11:1)
(Railroads—Maintenance and repair)
(Chernyshev, M.A.)

STREL'NIKOV, V.N., inzh., (Ryazan')

Necessary manual ("Surveying in track management" by A.F.Liuts,
V.P. Sorokin. Reviewed by V.N.Strel'nikov). Put' i put.khoz.
4 no.2:45 F '60.   (MIRA 13:5)
          (Railroads--Surveying)
          (Liuts, A. F.)
          (Sorokin, V.P.)

REPREV, A.I.; ZAYTSEV, P.F.; STREL'NIKOV, V.N., inzh.; VOZNESENSKIY, G.D.,
    kand.tekhn.nauk; ZHABOTINSKAYA, L.A., kand.tekhn.nauk;
    LEBEDEV, A.I.

New textbooks on surveying and designing railroads. Transp.
stroi. 12 no.5:58-61 My '62.   (MIRA 15:6)
                        (Railroad engineering)

STREL'NIKOV, V. N., inzh. (g. Ryazan')

"Maintenance and repair of the railroad track" by S. D. Povarenkov, A. S. Moroshkin, A. D. Tret'iakov. Reviewed by V. N. Strel'nikov. Put' i put. khoz. 6 no.9:42 '62.   (MIRA 15:10)

    (Railroads—Track)   (Povarenkov, S. D.)
    (Moroshkin, A. S.)   (Tret'iakov, A. D.)

STREL'NIKOV, V. P., Cand of Med Sci -- (diss) "Morphology of the Human

Neck Structure, Voronezh, 1959, 16 pp (Voronezh State Medical Institute

(KL, 5-60, 130)

L 22418-65   EED-2/EEO-2/EEC(k)-2/EWA(h)/EWT(d)/EWT(l)/FBD/T-2/EEC(m)/EWA(d)/
EEC(c)-2/FSS-2   Pg-4/Pk-4/Pl-4/Pn-4/Po-4/Pq-4/Pac-4/Pae-2/Peb   WR/MLK
ACCESSION NR: AT4047765   S/0000/64/000/000/0313/0321

AUTHOR: Strel'nikov, Yu. V.

TITLE: Photoelectric scanning devices for tracking luminous targets

SOURCE: AN SSSR. Institut avtomatiki i telemekhaniki. Teoriya i primeneniye
avtomaticheskikh sistem (Theory and application of automatic systems).
Moscow, Izd-vo Nauka, 1964, 313-321

TOPIC TAGS: scanning device, tracking device

ABSTRACT: The development of a new scanning device intended for tracking
luminous targets is reported. Essentially, the device includes (see Enclosure 1)
telescope 1 which collects luminous flux 2 emanating from the target. The flux is
focused on photocathode 3 of dissector 4. The knocked-out electrons go to
anode 8. The magnetic field of coil 5 focuses the target electron image on
diaphragm 7 of the dissector. Deflecting voltages are applied to two identical

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ACCESSION NR: AT4047765

pairs of coils 6 arranged in space quadrature. The movement of the electron spot on the diaphragm is, therefore, determined by a time-variation of the voltages. The dissector output signal is compared in 10 with reference signals (deflecting voltages) which produces error signals (deviation of the target from the optical axis) in two cross-directions. These signals can be used for controlling the actuator motors of the telescope. Three modifications of the device are briefly described. The project was carried out under the direction of Doctor of Technical Sciences G. P. Katy*s. Orig. art. has: 6 figures and 5 formulas.

ASSOCIATION: Institut avtomatiki i telemekhaniki AN SSSR (Institute of Automation and Telemechanics, AN SSSR)

SUBMITTED: 06Jun64   ENCL: 01
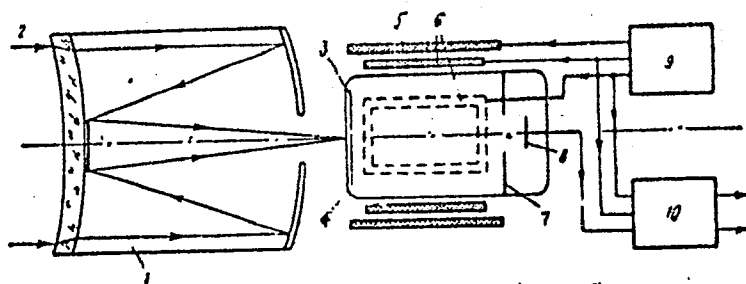
SUB CODE: EC, NG   NO REF SOV: 004   OTHER: 000

Card 2/3

ENCLOSURE: 01

Photoelectric scanning device

KATYS, Georgiy Petrovich; TEMNIKOV, F.Ye., doktor tekhn. nauk,
retsenzent; STREL'NIKOV, Yu.V., inzh., red.; PETROV,B.N.,akad.
red.
[Information scanning systems] Informatsionnye skaniruiushchie sistemy. Pod red. B.N.Petrova. Moskva, Mashinostroenie, 1965. 447 p.
(MIRA 18:12)

STREL'NIKOV, Yu.Ye. (Leningrad)

Study of the mechanism of the anti-inflammatory effect of cytosine
hydrochloride and the protective effect of preliminary inflammation.
Pat. fiziol. i eksp. terap. 4 no.3:24-26 My-Je '60. (MIRA 13:7)

1. Iz kafedry farmakologii, farmatsii i farmakognozii (zav. -
zasluzhennyy deyatel' nauki prof. N.V. Lazarev) Voyenno-meditsinskoy
ordena Lenina akademii imeni S.M. Kirova.
                (CYTOSINE)   (INFLAMMATION)
                (ADRENAL GLANDS--EXCISION)

STREL'NIKOV, Yu.Ye.

Comparative characteristics of the anti-inflammatory effects of
certain pyrimidine derivatives. Farm.i toks. 23 no.6:526-531 N-D
'60.   (MIRA 14:3)

1. Kafedra farmatsii i farmakognozii (zav. - zasluzhennyy deyatel'
nauki prof. N.V.Lazarev) Voyenno-meditsinskoy ordena Lenina akademii
imeni S.M.Kirova.   (PYRIMIDINE)

LOGINOV, A.V.; DUMOVA, A.M.; BYSTROVA, V.V.; STREL'NIKOV, Yu.Ye.;
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Pharmacological properties of soluble sodium salts of nystatin
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(MIRA 17:3)

1. Laboratoriya fiziologii i farmakologii Leningradskogo in-
stituta antibiotikov.

STREL'NIKOV, Y.Ye.

Pharmacological characteristics of cystamine. Farm. i toks. 26
no.6:632-637 N-D '63 (MIRA 18:0)

1. Kafedra farmakologii i farmatsii (zav. - prof. S. Ya.
Arbuzov) Voyenno-meditsinskoy ordena Lenina akademii imeni
S.M. Kirova.

STREL'NIKOV, Yu.Ye.

Effect of tetracyclines on the cardiovascular system. Antibiotiki 9
no.3:258-264 Mr '64.
                                         (MIRA 17:12)

1. Laboratoriya fiziologii i farmakologii (zav. A.V.Loginov) Leningrad-
skogo nauchno-issledovatel'skogo instituta antibiotikov.

LOGINOV, A. V.; BYSTROVA, V. V.; VOLINSKAYA, S. L.; DUMOVA, A. M.; STRELNIKOV, Yu. Ye.

"Soluble sodium nystatin for aerosol inhalation and its pharmacological properties."

report submitted for Antibiotics Cong, Prague, 15-19 Jun 64.

Sci Res Inst of Antibiotics, Leningrad.

IOFINA, E. I.; DUMOVA, A. M.; LOGINOV, A. V.; STRELNIKOV, Yu. Ye.; TETERINA, T. A.;
CHIRKOVA, O. O.

"Morphocycline, a water-soluble antibiotic for intravenous use, its synthesis,
properties and pharmacological characteristics."

report submitted for Antibiotics Cong, Prague, 15-19 Jun 64.

Sci Res Inst of Antibiotics, Leningrad.

STREL'NIKOV, Yu.Ye.

Pharmacological characteristics of tetramethylcystamine. Farm.
i toks. 27 no.3:345-349 My-Je '64.   (MIRA 18:4)

1. Kafedra farmakologii i farmatsii (zav. - prof. S.Ya.Arbuzov)
Voyenno-meditsinskoy ordena Lenina akademii imeni Kirova, Leningrad.

STREL'NIKOV, Y.S. ...

... of ... on the heart in an experiment based
on electrocardiographic data. Antibiotiki 10 no.7:650-
656 JL '65.

1. Laboratoriya fiziologii i farmakologii (zav.- A.V. Lepilov)
Leningradskogo instituta antibiotikov.

STREL'NIKOVA, A.

METELENKO, N.;   STREL'NIKOVA, A.

Use of blast-furnace slag for water purification.   Stal' 15 no.2:183
F '55.   (MLRA 8:5)

1. Stalinskiy metallurgicheskiy zavod.
        (Slag) (Water--Purification)

STREL'NIKOVA, A.; SIDOROVA, Z.

Let's give love and care to labor veterans. Okhr. truda i
sots. strakh. 5 no.7:12-13 Jl '62.   (MIRA 15:7)

1. Predsedatel' komissii zavodskogo komiteta po pensionnym
voprosam na 1-m Moskovskom chasovom zavode (for Strel'nikova).
2. Zamestitel' predsedatelya komissii zavodskogo komiteta po
pensionnym voprosam na 1-m Moskovskom chasovom zavode (for
Sidorova).
                       (MOSCOW—PENSIONS)

KRASNOZHEN, D.Ye., inzhener; STREL'NIKOVA, A.A., inzhener.

Using recarbonization in the working cycle. Elek.sta. 27 no.
8:48-50 Ag '56.   (MLRA 9:10)

(Condensers (Steam)) (Feed water)

USSR/Chemical Technology -- Chemical Products and Their   I-6
         Application. Photographic Materials.

Author   : Kirillov, N.I., Strel'nikova, A.P.
Inst   : .
Title   : Processes of Color Photography on Multilayer Materials
              and Their Utilization in Cinematography.

Abstract   : Description of various processes of color photography with
              multilayer films and of procedures for improving the qua-
              lity of the colored picture and phonogram of color films.
              A comparative characterization is given of the production
              methods of color motion picture films with separate treat-
              ment processes for pictures and phonograms.

Card 1/1

STREL'NIKOVA, A.P.; LEVKOYEV, I.I.; KIRILLOV, N.I.

Studying the formation of dyes during the black and white
development of color films. Zhur. nauch. i prikl. fot. i kin.6
no.1:6-13 Ja-F '61.   (MIRA 14:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut.(NIKIF).
      (Color photography—Developing and developers)

MAGDIYEV, R.R.; DZHABRIYEV, N.I.; ZUYEVA, Ye.V.; ARUTYUNOVA, A.A.;
     YEMYASHEVA, Z.I.; STREL'NIKOVA, G.A. ; ABUNAGIMOV, Kh.Z.

Expérience in the organization of taeniarhynchosis control
directed at its liquidation. Med. paraz. i paraz. bol. 34
no.2:133-139 Mr-Ap '65.   (MIRA 18:11)

1. Uzbekskiy institut eksperimental'noy meditsinskoy parazitologii
i gel'mintologii, g. Samarkand, i Gorodskaya bol'nitsa, Rayonnaya
sanitarno-epidemiologicheskaya stantsiya, g. Katta-Kurgana.

137-58-4-6975

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 94 (USSR)

AUTHORS: Petrov, D. A., Mirgalovskaya, E. M., Strel'nikova, I. A.
            Komova, E. M.

TITLE: Producing Single Crystals of AlSb and Study of Their Properties
            (Polucheniye monokristallov AlSb i izucheniye ikh svoystv)

PERIODICAL: V sb.: Vopr. metallurgii i fiz. poluprovodnikov Moscow,
            AN SSSR, 1957, pp 70-79

ABSTRACT: The conditions for producing single crystals of AlSb and the
            electrical properties thereof were studied. Special features of
            the synthesis of this compound are described. It is established
            that single-phase bars may be obtained if 0.29 percent excess of
            Al be used (18.42 weight percent). The starting materials Sb
            SU-0 and Al AB-000 were purified by floating-zone recrystal-
            lization, subsequent to which the content of Fe, Cu, Bi, Pb, Al,
            Ca, and Sn in the Sb diminished to about 10^{-3} percent, while that
            of As diminished to over 10^{-3} percent, and the Ti, Mn, Zn, Sn,
            in the Al diminished to $\leq 10^{-4}$ percent. Single crystals of AlSb
            derived by extraction from the melt in an atmosphere of purified
            Ar were of the p-type. An excess of Sb and Al did not change the

Card 1/3

137-58-4-6975

Producing Single Crystals of AlSb and Study of Their Properties

type of conductivity. When it was desired to obtain single crystals of the n-type. Se or Te was added to the charge. Volt-ampere characteristic curves for the n- and p-type materials produced are presented, as are photographs of the specimens. The rectification factor was 10-500, sometimes attaining 16,000 units, the Hall mobility was 127 $cm^2/v/sec$ when the number of holes ran $1.2 \times 10^{18}/cm^3$. The low resistivity ρ 0.03-0.04 ohm/cm and the small inverse voltage of 3-4 v (sometimes 12) indicates the presence of a considerable quantity of uncontrolled impurities. Re-drawing did not improve results. Zone recrystallization of the compound performed in an apparatus with a Ta heater in an Ar atmosphere proved to be an effective method of further purification. Multi-crystalline specimen. 70-80 mm long and 6-7 mm in diameter, with resistivities of 10-200 ohm/cm at the clear end of the bar, were obtained. When resistivity was about 200 ohm/cm, the cold immobility was found to be 178 $cm^2/v/sec$, and the number of holes to be 1.75×10^{14} cm^{-3}. An attempt was made to obtain a p-n junction by deriving p-material from an n seed crystal and also by the fusing together of In and Pb. Cd and Te, Sn and In. The results were p-n junctions with a rectification factor of 3-10 units and an inverse voltage of 4-8 v. Specimens of the n and p types with resistivities of ρ 0.1 ohm/cm were used to make point-contact diodes having rectification factors of 70-200 units. A volt-ampere characteristic curve of the diode and

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137-58-4-6975

Producing Single Crystals of AlSb and Study of Their Properties

its temperature dependence is presented. When heated from $18-100^\circ$ the magnitude of $A_{inverse\ p}$ for $U_{inverse\ p} = 1$ v varied from 10-60 microamperes.

L. M

1. Single crystals--Production   2. Single crystals--Properties   3 Single crystals--Study and teaching

Card 3/3

AUTHORS: Petrov, D.A., Mirgalovskaya, M.S., Strel'nikova, I.A.,
             Komova, E.M.

TITLE: Phase Diagram of the Mg-Mn System (Diagramma sostoyaniya
             sistemy Mg-Mn)

ABSTRACT: Alloys containing up to ~ 5% Mn were investigated. The sol-
ubility of Mn in liquid Mg was determined by thermal analysis
and by the thermostatic method; at 850, 790, 760, 710, and
670°C it is equal to 4.95; 3.83; 3.11; 2.58; and 2.10% Mn,
respectively. The solubility of Mn in solid Mg was determined
by the methods of microstructural analysis and the measure-
ment of microhardness; at 300, 400, 500, 550, 600, and 630°
it is equal to 0.1; 0.24; 0.7; 0.9; 1.6; and 2.0% Mn, respectively.
The nonvariant three-phase reaction at 653° was established to
be a peritectic one. The point of nonvariance is placed at 2.0%
Mn. The solubility of Mn in Mg at 653° amounts to 2.3%.   L. V.

Card 1/1

137-1957-12-24868

· Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 273 (USSR)

AUTHORS: Petrov, D. A.,   Mirgalovskaya, M. S.,   Strel'nikova, I. A.,
Komova, E. M.

TITLE: Phase Diagram of the Magnesium Area in the Mg-Mn-Ce System
(Diagramma sostoyaniya magniyevogo ugla sistemy Mg-Mn-Ce)

ABSTRACT: Corundum crucibles were used in the melting of Mg alloys
which were composed of (in percent): Fe 0.031, Si 0.03,
Al 0.009, Cu 0.008, and Ce, and which contained 1.4 percent of rare
metals and Mn in the form of an anhydrous, high-purity, chlor-
ide. Alloys from the area of primary separation of α Mg were
annealed at 300-600°C and investigated by means of thermal and micro-
structure methods. In alloys from the zone of primary crystalli-
zation of Mn, the solubility of Mn in the presence of Ce as a
function of temperature was determined by holding superheated
Mn melts at constant temperature, taking samples, and establishing the
chemical composition for the purposes of locating the position of the
mono-variant curve, anhydrous, manganese chloride (?) was used. It
was introduced into the molten Mg at a temperature of 850°;

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137-1957-12-24868

Phase Diagram of the Magnesium Area in the Mg-Mn-Ce System

after holding at temperature for 2.5 hours, in excess of Ce in interaction,
and the melt was stirred and permitted to cool slowly. The
upper section of the ingot was subjected to a chemical as well
as a thermal analysis. The Mg area of the system contains
three mono-variant curves of the following three-phase equili-
briums: L + Mg + Mn; L + Mg + CeMg$_9$; L + Mn + CeMg$_9$; (where
"L" stands for the liquid phase; Transl. Note). When the Ce
content is changed from 0 to 1.5 percent, the solubility of Mn
is reduced from 5 to 3.8 percent at a temperature of 850°;
with 12 percent Ce the solubility of Mn is 3.4 percent. In the
presence of Mn the solubility of Ce in α Mg is somewhat re-
duced, whereas the solubility of Mn in α Mg, in the presence
of Ce remains practically unaltered. The point of
maximum saturation of α Mg lies at approximately .7% Ce
and 1.3% Mn.   The line of the equilibrium of L $\rightleftharpoons$ Mg+Mn
originates at 2.0 percent Mn on the Mg-Mn side, and approaches
the Mg-Ce side terminating at the point corresponding to 1.45
percent Mn, and 585°. Up to the point 97.7 percent Mg, 2.0
percent Mn, and 0.3 percent Ce the line describes the peritectic
process L+Mn $\rightleftharpoons$ Mg, whereas beyond this point it describes

Card 2/3   the eutectic process L $\rightleftharpoons$ Mn+Mg. The line L $\rightleftharpoons$ Mg+CeMg$_9$

137-1957-12-24868

Phase Diagram of the Magnesium Area in the Mg-Mn-Ce System

originates in the point which corresponds to 21 percent Ce and 590°. The curve terminates in the eutectic triple-point.   L. V.

1. Magnesium alloys-Chemical analysis   2. Magnesium alloys-Thermal analysis   3. Magnesium alloys-Phase studies

Card 3/3

SOV/137-58-7-14719

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 109 (USSR)

AUTHORS: Mirgalovskaya, M.S., Matkova, L.I., Strel'nikova, I.A., Komova, E.M.

TITLE: Production of Single Crystals of InSb and AlSb and Study of the Properties Thereof (Polucheniye monokristallov InSb i AlSb i izucheniye ikh svoystv)

PERIODICAL: Tr. 1-y Mezhvuzovsk. konferentsii po sovrem. tekhn. dielektrikov i poluprovodnikov. 1956 g. Leningrad, 1957, pp 163-169

ABSTRACT: A description is offered of a method of producing single crystals of the semiconducting chemical compounds InSb and AlSb. The single crystals were obtained by pulling in an inert gas atmosphere. The fact that the rods consisted of single crystals was determined visually by cleavage and by Laue diffraction pattern of the cleavage plane. Production of single crystals of InSb involved no particular difficulties. The InSb was purified by re-pulling. The resistance of the samples obtained was $0.01-0.014$ ohm·cm, and the mobility of the holes was $2.1 \cdot 10^3$ cm^2/v sec. The InSb compound has no rectifying

Card 1/2

SOV/137-58-7-14719

Production of Single Crystals of InSb and AlSb (cont.)

effect. Production of single crystals of AlSb by pulling from a melt is dif-
ficult, as an excess of >0.29% Al in the mix over the stoichiometric ratio
leads to the formation of a second phase, and this speeded the corrosion of
the compound in air. To produce a single-phase compound, it is necessary
to hold it for a long time at high temperatures and to stir the melt. The
single crystals of AlSb produced have p-type conductivity. The resistivity of
the specimens is 0.03-0.4 ohm·cm, the reverse voltage is 3-4 v, attaining
12 v in individual samples, the rectification factor is 1600, the mobility of
the holes 127 cm^2/v sec at $n_g = 1.2 \cdot 10^{18}$ cm^{-3}. When the compounds are pur-
ified by controlled recrystallization, the electrical resistivity of the speci-
mens declines at the first passes, but increases in subsequent ones. The
resistivity of the initial InSb polycrystal of InSb is 0.014 ohm·cm. The single
crystal from the first pulling has a resistivity of 0.0008 ohm·cm, and a
single crystal pulled twice has a resistance of 0.01-0.114 ohm·cm. The pul-
ling rate is ~1.0 mm/min, the rotation of the crucible being a few revolu-
tions per min. It was established that excess of a component over the stoi-
chiometric ratio does not change the type of conductivity of these compounds.
It is found that floating-zone refining of AlSb makes it possible to increase
the resistivity of the specimens (to 20-200 ohm·cm) and to reduce the num-
ber of carriers by ~1.75·10^{14}cm^{-3}.   2. Single crystals--Properties
Card 2/2   1. Single crystals--Production   V.Kh.

137-58-3-5832

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 194 (USSR)

AUTHORS: Mirgalovskaya, M. S. , Strel'nikova, I. A.

TITLE: An Investigation of the Mn-Ce System (Issledovaniye sistemy Mn-Ce)

PERIODICAL: Tr. In-ta metallurgii AN SSSR, 1957, Nr 2, pp 135-138

ABSTRACT: The phase diagram of the Mn-Ce system was plotted from data obtained by thermal analysis and microstructural studies. The alloying of electrolytic Mn (0.04 percent Fe, 0.01 percent Si, 3.3 percent rare earth elements) with Ce was performed in a high-frequency induction furnace in the presence of flux composed of chlorous salts. An excess of Ce (50 percent) was introduced into the molten Mn. A eutectic phase diagram was constructed in which the eutectic was at 635°C and 5 percent Mn. The liquidus line has four branches corresponding to the crystallization of the three Mn modifications and to the high-temperature modification of Ce. At temperatures above 1087° and with a Ce content varying between 0 and 27 percent, δ Mn crystals primarily are formed; at 27-35 percent Ce and temperatures between 1087° and 998° γ Mn is formed, and at 35-95 percent Ce and temperatures between

Card 1/2

137-58-3-5832

An Investigation of the Mn-Ce System

998° and 635°, β Mn prevails.   The nature of the transformations at 1087°
and 998° has not been established.

R. M.

Card 2/2

24.7100

69032

AUTHORS: Mirgalovskaya, M. S., Strel'nikova, I. A.   S/078/60/005/04/038/040
B004/B016

TITLE: Twin Formation in Aluminum Antimonide

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol 5, Nr 4, pp 985 - 986
(USSR)

ABSTRACT: The purpose of this investigation was that of determining the
conditions for the formation of twin crystals which disturb the
electric properties in the breeding of semiconductor crystals.
AlSb was obtained by melting from pure Sb and Al of the AV-000
type at 1100°. The monocrystals were prepared according to
Chokhral'skiy's method in a device described in reference 8. The
authors describe the structural modifications on this device
which were made in order to obtain the most favorable tempera-
ture gradient for the breeding of monocrystals (Radial gradient
$dT/dr \longrightarrow 0$, axial gradient dT/dz at a minimum). The breeding of
the crystals was carried out in helium atmosphere at 1.5 atm.
Helium was purified by means of KAD active charcoal. The radio-
grams according to Laue of the crystal directions $[110]$, $[112]$,
$[111]$ are shown in figure 1. The direction $[100]$ was too un-
favorable to be dealt with (Ref 2). The authors obtained the
following results: In direction $[112]$ twins are mainly formed
under an angle of 83° to the direction of growth. In direction

Card 1/2

Twin Formation in Aluminum Antimonide

69032

S/078/60/005/04/038/040
B004/B016

$[111]$ no twins are formed as a rule, but they do form if there is a deviation by $1 - 2^{\circ}$ from this direction. If the crystal grows in direction $[110]$, twins are formed in all cases. Direction $[111]$ must therefore be regarded as the optimum one for the breeding of AlSb monocrystals. These conclusions may also hold for GaSb and InSb. There are 2 figures and 8 references, 3 of which are Soviet.

SUBMITTED: October 23, 1959

Card 2/2

20123

9,4300 (and 1035,1143)

S/181/61/003/002/021/050
B102/B212

AUTHORS: Mirgalovskaya, M. S. and Strel'nikova, I. A.

TITLE: Production of alloyed single-crystals and of p-n junctions in aluminum antimonide

PERIODICAL: Fizika tverdogo tela, v. 3, no. 2, 1961, 456-458

TEXT: Among semiconducting compounds of type $A^{III}B^{V}$, AlSb is of special importance for the production of diodes, thermistors, infrared filters, solar batteries, etc. because of its great forbidden-band width (1.65 ev). Investigations have been performed repeatedly will alloys of AlSb and other elements and it has been found that Ge, Cu, Ag, Au, Li, Be, and Sb do not change the type of conductivity; Zn and Cd function as acceptors, and Sn, Pb, As, Bi, Te, and Se as donors. At present there are no data on the influence of sulphur available. The authors have investigated the influence of S, Te, and Se on the electric properties and also the properties of p-n junctions of AlSb. Antimony with less than $10^{-3}\%$ of As has been used as starting material, and also Zn and Al of type AB-000 (AV-000) after recrystallizing the material 15 times it had less than

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20122

Production of alloyed...

S/181/61/003/002/021/050
B102/B212

10^{-3}% impurities. The single-crystals have been grown according to the method of Chokhral'skiy (growth rate 0.7 mm/min). They were 40-60 mm long with a diameter of 10-18 mm. They showed p-type conductivity and their Mg, Si, Cu, and Fe content was less than 1.10^{-3}%. Tellurium and selenium impurities and also sulphur in form of Sb_2S_3 have been added

in portions of 10^{-2}% (s. Table). The electric properties have been investigated at room temperature and the results are given in a table. It can be seen that the transition of the p-type AlSb into the n-type takes place with 0.05% Te, 0.07% Se, and 0.09% S. Results of these investigations can be summed up as follows: Highly resistant p-type AlSb single-crystals have been obtained with additions of 0.03% S (ϱ = 300 ohm·cm, μ = 900 cm^2/v·sec, n = 10^{12} cm^{-3}) and 0.07% S (ϱ = 2000 ohm·cm); additions of 0.07% Se (ϱ = 6 ohm·cm, μ = 906 cm^2/v·sec, n = $2.2·10^{14}$ cm^{-3}, τ =40m·sec, V_{rev} = 7 v) and 0.09% S (ϱ = 600 ohm·cm) resulted in highly resistant n-type AlSb single-crystals. The most distinct p-n junction has been established for 0.09 % by weight of Se. Static volt-ampere characteristics of a large p-n junction are an indication of its rectifying properties, and such large p-n junctions can be used to make plane surface

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20123

Production of alloyed...

Легирующая добавка, % /1	Тип проводимости /2	ρ, ом · см.	R_X, см.³/кул.	μ_p, см²/в	μ_n, см² · в · сек.	n, см⁻³	τ, сек.	$V_{обр.}$, в
—	p	0.264	—	670	—	$3.5 \cdot 10^{16}$	0.2	6—7
0.02Te	p	0.246	18.0	65	—	—	12	7
0.05Te	n	0.45	—180	—	340	$4.1 \cdot 10^{16}$	5	2
0.07Te	n	0.1	—4	—	68	$1.84 \cdot 10^{18}$	—	1
0.05Se	p	0.1	20	200	—	$4 \cdot 10^{17}$	—	1
0.07Se	n	6	—400	—	906	$2.2 \cdot 10^{14}$	40	7
0.07Se	n	0.33	—330	—	850	$2.2 \cdot 10^{16}$	15	8
0.03S	p	300	$6 \cdot 10^5$	900	—	10^{12}	—	—
0.07S	p	2000	—	—	—	—	—	—
0.09S	n	600	—	—	—	—	—	—

Legend to Table: 1) Addition to AlSb;   2) type of conductivity.

Card 4/4

20123

Production of alloyed...   S/181/61/003/002/021/050
                                            B102/B212

rectifiers. The curved shape of a p-n junction can be changed into a more
plane one by choosing a suitable temperature ratio (with a minimum tem-
perature gradient in radial direction). V. A. Kokoshkin assisted during
the measurements. There are 3 figures, 1 table, and 10 references:
2 Soviet-bloc and 7 non-Soviet-bloc.

ASSOCIATION: Institut metallurgii im. A. A. Baykova AN SSSR Moskva
              (Institute of Metallurgy imeni A. A. Baykov AS USSR, Moscow)

SUBMITTED: May 10, 1960 (initially)
              August 19, 1960 (after revision)

Card 3/4

S/078/63/008/004/007/013
A059/A126

AUTHORS: Mirgalovskaya, M.S., Strel'nikova, I.A.

TITLE: On the interaction of aluminum antimonide with sulfur

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 8, no. 4, 1963, 950 - 953.

TEXT: The influence of the polarity of the directions $<111>$ of growth on the effective distribution coefficient K_{eff} for sulfur in aluminum antimonide, pure and sulfur-doped, has been studied; at first, the influence of the growth- -direction polarity on the structure of the rod grown has been determined. Non- -doped AlSb single crystals and sulfur-doped AlSb single crystals were obtained by the Czochralski method in purified helium, at 1.5 at. The doping substance, Sb_2S_3, was introduced through a special-type hopper. It has been found experi- mentally that the growth of AlSb single crystals in the direction A $[111]$ is in- hibited. The influence cf the speed of rotation of the seeding substance on the character of sulfur uptake has been investigated in order to establish optimum conditions. An infrared microscope sensitive to the $0.8 - 1.3 \mu$ wave band was used to determine sulfur distribution in the single crystals obtained. The de-

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On the interaction of aluminum antimonide with sulfur

S/078/63/008/004/007/013
A059/A126

gree of mixing of the melt influences the sulfur distribution in AlSb. The following conditions of melting were chosen: drawing rate of 0.6 mm/min, speed of rotation of the seed of 23 rpm, and a speed of rotation of the crucible of 2 rpm. The value of K_{eff} for S in AlSb was found to depend on the polarity of growth of the rod, with a value of -1.9 ± 0.23 for the growth of S-doped AlSb single crystals in the direction B [111], and of -0.55 ± 0.6 in the direction A [111]. There are 5 figures and 3 tables.

SUBMITTED: January 27, 1962

Card 2/2

L 35587-65   EPR/EWA(c)/EWT(m)/EWP(b)/T/EWA(d)/EWP(t)   Ps-4 IJP(c)   MJW/JD/JXT(CZ)

ACCESSION NR: AP5007613   S/0363/65/001/001/0091/0095

AUTHOR: Strel'nikova, I. A.; Mirgalovskaya, M. S,

TITLE: The distribution coefficient of zinc in aluminum antimonide

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 1, 1965,
91-95

TOPIC TAGS: aluminum antimonide, zinc distribution, zinc diffusion, single crystal,
solid solution

ABSTRACT: Since work analogous to that done on the diffusion of sulfur in aluminum
antimonide has not been done on the zinc-aluminum antimonide system, the authors
studied the effect of the polarity of direction (111) on the coefficient of
diffusion of zinc (impurities no more than 0.0004%) in AlSb made of aluminum AV-000
and antimony SU-000, all of which were tested for purity by spectral analysis.
The AlSb single crystals to be alloyed with zinc were obtained by Chokhral'skiy's
method, which the authors had used in a previous work. The orientation of surfaces
A(111) and B(111) was determined by a photomicrographic procedure (method of Laue)
in an RKSO chamber after etching. No real difference was noted in the development
of coalescence in the A(111) and B(111) directions. The polarity of directions of

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L 35587-65

ACCESSION NR: AP5007613

growth A(111) and B(111) was found to have an effect on the value of K_{ef} (coefficient of diffusivity) of zinc in aluminum antimonide. $K_{ef}Zn$ in AlSb is 0.45 ±0.06 and 1.2± 0.14 for the A(111) and B(111) directions, respectively, when crystals are grown by Chokhral'skiy's method. Orig. art. has: 2 tables, 1 formula and 2 figures.

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Metallurgical institute)

SUBMITTED: 24Jul63   ENCL: 00   SUB CODE: MM, SS

NO REF SOV: 005   OTHER: 006

Card   2/2

L 41283-65   EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b)   P1-4   IJP(c)   RWH/MJW/JD

ACCESSION NR: AP5007614   S/0363/65/001/001/0096/0099

AUTHOR: Strel'nikova, I. A.; Mirgalovskaya, M. S.

TITLE: A study of phase equilibria in the Al-Sb-S system

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 1, 1965, 96-99

TOPIC TAGS: phase diagram, solid solution, aluminum antimonide, sulfur distribution, antimony alloy

ABSTRACT: The fact that sulfur, in the process of alloying with AlSb, produces changes in the semiconductor characteristics of the latter, indicates a need for further study. Data on the Al-Sb, Al-S, and Sb-S systems was taken from the literature and aluminum AV000 with spectroscopically determined traces of Mg, Cu, Si, and Fe, antimony Su-000, and sulfur containing traces of Mg and As were used as raw materials. The components were mixed, fused in quartz ampoules, heated in an argon atmosphere at a pressure of 550 mm Hg for 4-6 hours to 1100C (producing AlSb-Sb₂S₃) and 1200C (for the alloys AlSb-Al₂S₃ and AlSb-AlS), held there for 1 hour while stirring by electric current, cooled to 500 or 700C for 2-3 hours under vibration, and homogenized by being held at 750C for 1.5 months. All samples

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ACCESSION NR: AP5007614   /

were then subjected to thermal analysis by Stepanov's method, the recording of
cooling curves by Kurnakov's pyrometer, microstructural analysis, and microhard-
ness analysis by a PMT-3 apparatus. Certain samples of the first alloy were also
subjected to X-ray analysis. The resultant phase diagram is shown in Fig. 1 of
the Enclosure. It was determined that sulfur is not found in equilibrium with
AlSb. The quasibinary equilibria formed are $AlSb-Al_2S_3$, $Al_2S_3-Sb_2S_3$, and Al_2S_3-
Sb. The first system forms an almost insignificant region of solid solutions based
on AlSb. The solubility of Al_2S_3 in AlSb was found to be $\sim 0.1\%$ by wt. Orig. art.
has: 1 table and 6 figures.

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Metallurgical institute)

SUBMITTED: 16Nov63   ENCL: 01   SUB CODE: MM

NO REF SOV: 002   OTHER: 007
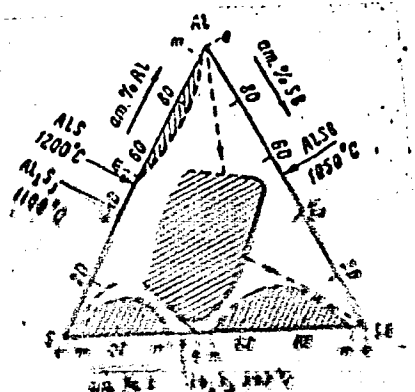
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Fig. 1. The system Al-Sb-S

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L 26759-66   FBD/EWT(1)/EWT(m)/SSC(k)-2/T ESP(k)/ESA(h)   IJP(c)   WG/JD/JG

ACC NR: AP6012457   SOURCE CODE: UR/0181/66/008/004/1028/1034

AUTHOR: Kryukova, I. V.; Mirgalovskaya, M. S.; Karnaukhov, V. G.; Baranova, A. K.;
Strel'nikova, I. A.

ORG: none

TITLE: Some features of coherent emission of gallium antimonide laser diodes

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1028-1034

TOPIC TAGS: gallium antimonide, laser emission, pn junction, laser, laser diode

ABSTRACT: This is a continuation of an earlier study of laser effects in diffusion
GaSb p-n junctions (FTT v. 7, 342, 1965). The present study was made with drawn p-n
junctions with the aim of determining in greater detail the features of their emission
and to explain why diffusion p-n junctions have a lower efficiency than drawn junc-
tions. The junctions were produced in a crystal grown by the Czochralski method.
The p-n junction plane was perpendicular to the crystallographic (111) direction and
the Fabry-Perot diode structure was produced by optical polishing. The diode dimen-
sions were 0.4 x 0.5 x 0.5 mm. The measurements were made at 77K with the radiation
produced both at large current densities (pulsed mode, pulse duration 1 μsec) and at
low densities (dc). At low current densities the emission spectra of the investi-
gated p-n junctions consisted of a single broad line with a maximum noticeably shifted
toward the long wave length side compared with the width of the forbidden band of GaSb
(0.80 ev). At larger currents, the radiation peak shifted toward the short wave length side

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ACC NR: AP6012457   3

(0.76—0.78 ev), with a maximum half-width of the spectral line of 0.5 x 10^{-3} ev and threshold current densities of 3 x 10^3--1.2 x 10^4 amp/cm^2. Although the results indicate conclusively that a laser action was produced in these junctions, the low resolution of the apparatus did not make it possible to observe the possible oscillation modes. Reduction of the temperature (to that of liquid helium) did not produce a noticeable change in the radiation parameters. Several arguments are advanced in favor of the hypothesis that states situated in the forbidden band participate in the stimulated transitions. The dependence of the shift of the radiation peak and of the width of the spectral line at different injection levels is analyzed and it is indicated that the reason why the previously investigated diffusion p-n junction had worse laser parameters is due to the lower degree of doping attained by the diffusion process and to a different character of the impurity distribution in the two types of junctions. There is also a difference in the recombination mechanism in the two junctions. The authors thank B. M. Vul for a discussion of the results and P. G. Yeliseyev and V. I. Shveykin for useful advice. Orig. art. has: 6 figures.   [02]

SUB CODE: 20/   SUBM DATE: 07Aug65/   ORIG REF: 003/   OTH REF: 013/
ATD PRESS: 4258

Card 2/2

STREL'NIKOVA,K.V.

Safety coefficient in steep ore deposit occurrences. Ugol'
30 no.6:30-31 Je '55.   (MLRA 8:8)

1. Starshiy nauchnyy sotrudnik Ural'skogo filiala Vsesoyuz-
nogo nauchnoissledovatel'skogo marksheyderskogo instituta.
                    (Mining engineering)

AUTHOR: Strel'nikova, K.V., Engineer   127-58-6-20/25

TITLE: A Wooden Mark for the Observation of Rock Shifting in a
               Mountain Range (Derevyannyy reper dlya nablyudeniya za
               sdvisheniyem gornykh porod v massive)

PERIODICAL: Gornyy Zhurnal, 1958, Nr 6, pp 73-74 (USSR)

ABSTRACT: For the full study of the process of the shifting of rocks
               over the mines it is necessary to keep them under constant
               observation. The Ural' branch of the VNIIMI devised a
               wooden mark, very simple and inexpensive to prepare. A
               detailed description is given.
               There are 2 figures.

ASSOCIATION: Ural'skiy filial VNIMI   (The Ural Branch of VNIMI)

AVAILABLE: Library of Congress

Card 1/1   1. Geology-Rock shifting

ZAYDMAN, Ye.; STREL'NIKOVA, L., inzh.

    Consultation. Rech. transp. 20 no.50-51 N '61. (MIRA 15:1)

    1. Starshiy yuriskonsul't Ministerstva rechnogo flota (for
Zaydman). 2. Otdel truda i zarabotnoy platy Ministerstva
rechnogo flota (for Strel'nikova).
                 (Inland water transportation—Employees)

STEEL'NIKOVA, L., inzh.

Mixed continuous-loading brigade.   Mech.transp. 23 no.9:
22-23 S '64.   (MIRA 19:1)

SMIRNOV, M.P.; STREL'NIKOVA, L.N.

Continuous copper extraction from lead. Sbor. nauch. trud.
Gintsvetmeta no.18:199-215 '61.   (MIRA 16:7)

(Lead—Metallurgy)

SMIRNOV, M.P.; STREL'NIKOVA, L.N.

Large-scale laboratory testing of the method of alkali smelting
of lead concentrates. Sbor. nauch. trud. Gintsvetmeta no.19:
422-431 '62.   (MIRA 16:7)

(Lead—Metallurgy)   (Smelting—Testing)

SMIRNOV, M.P.; STREL'NIKOVA, L.N.

Investigating the fusibility diagram of the binary system
NaOH - Na_2S and the ternary system NaOH - Na_2S - Na_2SO_4.

Sbor. nauch. trud. Gintsvetmeta no.23:67-73 '65.

(MIRA 18:12)

STREL'NIKOVA, M.M.

Method for the mass selection of spindle-tree shrubs for high gutta-percha content. Dop.AN URSR no.1:48-55 '49. (MLRA 9:9)

1.Ukrainskiy naukovo-doslidniy institut lisnogo gospodarstva. Pred-staviv diysniy chlen AN URSR P.S.Pogrebnyak.
(Spindle tree) (Gutta-percha)

another translation of title -- "On a method of mass collection of high guto-content shrubs of the spindle tree", Dokl. Ak. Nauk Ukr SSR, 1, p.48-55

STREL' NIKOVA, M. M.

5696. Kok-saghyz rubber in relation to conditions of cultivation. M. M. STREL'NIKOVA, and E. O. MAIBORODA. *Botan. Zhur.*, 1955, **12**, No. 1, 32-43; *Referat. Zh. Khim., Biol. Khim.*, 1955, abs. 14514; *Chem. Abs.*, 1957, **51**, 10935. Experiments showed that an increase in the temperature of the air and of the soil during the vegetative period lowered the rate of rubber synthesis, and the polymerising properties of the rubber were rendered inferior. Excessive moisture affected unfavourably the concentration of the rubber in the latex and in the whole root.
1C5

Inst. Genetics and Selection, Acad. Sci. Ukr SSR, Lab. Biochem.

USSR / Cultivated Plants. Cereal Crops.

Author   : Strel'nikova, M. M.
Inst   : Khar'kov University
Title   : The Quality of Wheat Grain in Relation to the Conditions
             of Growing

Abstract   : The content of albumen in grain of summer wheat of the
             Artemovka variety, after growing under various temperature
             conditions and when the soil moisture was at 45 and 85%
             of total capacity, was studied at the Ukrainian in-t
             of plant cultivation, selection and genetics. The special
             importance of the influence of the temperature factor
             on the variation of albumen content is shown. No decrease
             of albumen content was observed at high temperatures even

Card 1/2

STREL'NIKOVA, M.M. [Striel'nykova, M.M.]

Quality of wheat gluten as affected by growing conditions. Trudy
Inst. gen. i sel. AN URSR 5:73-80 '58.   (MIRA 11:9)
    (Wheat)   (Gluten)

STREL'NIKOVA, M.M.; VERTIY, S.A.; MEYERZON, Ye.Ye.

Some biochemical characteristics of "strong" wheats. Biokhim.
zer. i khlebopech. no.7:167-179 '64.   (MIRA 17:9)

1. Ukrainskiy nauchno-issledovatel'skiy institut
rasteniyevodstva, selektsii i genetiki.

STREL'NIKOVA, N.A.

Diatoms and siliceous flagellates from Paleogene sediments in
the Ob'-Pur interfluve. Trudy VNIGRI no.158: '60.   (MIRA 14:3)
   (Ob' Valley---Algae, Fossil)

STREL'NIKOVA   N. D.

Complex formation of acetamide and benzamide with other organic compounds. N. D. Strel'nikova (Polytech. Inst., Tomsk). Zhur. Obshchei Khim. 26, 1668-6 (1956).— Forty binary systems contg. AcNH₂ or BzNH₂ were exand thermally. The amides display electron-donor properties in respect to several substances with which compds. were formed. The results are shown only graphically. AcNH₂ forms eutectic systems with p-toluidine, 1- and 2-C₁₀H₇NH₂, C₁₀H₇OH, BzNH₂, CO(NH₂)₂, and RCO₂H. AcNH₂·PhNH₂ gave a max. at 1:1 molar ratio. AcOH with PhOH, resorcinol, and pyrocatechol were examd., only near the ends of the diagram, glassy solns. being formed that failed to crystallize; the system with hydroquinone showed a concealed max. at 1:1 molar ratio. BzNH₂ gave eutectics with AcNH₂ and CO(NH₂)₂; with CS(NH₂)₂ there formed a compd. BzNH₂·2CS(NH₂)₂, m. 138.4°, and 2 eutectics; simple eutectics were formed with AcNHPh, phenacetin, p-toluidine, benzidine, and naphthylamines; with PhOH there formed a eutectic at 80 mol % PhOH; resorcinol gave a compd. at 1:1 mole ratio, m. 80.8°, and 2 eutectics; pyrocatechol gave glassy solns.; hydroquinone and naphthols gave sharp and deep eutectics, as did nitro compds. and org. acids.

G. M. Kosolapoff

USSR/Physical Chemistry, Thermodynamics, Thermochemistry,   B-8
     Equilibriums, Phys-Chem. Anal. Phase-Transitions.

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22340.

Author   : B. V. Tronov, N. D. Strelnikova.
Inst   : Not given
Title   : Study of nitrile complex formation reaction with other organic
           compounds.

Orig Pub : Izv. Tomskogo politekhn. in-ta, 1956, 83, 98-101.

Abstract : By earlier electrochemical method (Tronov B.V., Kulev L.P.
           Izv Tomskogo politekhn. in-ta, 1948, 64, 3-87) were explored
           13 binary systems in toluene solutions at 20-22° (electrodes
           were of sodium and platinum). One of binary system components
           was benzonitrile or isovalero-nitrile; the second comprised
           isovaleric or benzoic acids, phenol, normal butyl alcohol,
           isoamyl, triisoamyl boric ester, acetone, nitromethane, ortho-
           nitrotoluene, pyridine, benzamide. Almost in all systems an
           increase of electromotive force was noticed which indicates
           the presence of a complex formation. An electron-acceptor type
           of a complex formation is prevalent with the nitriles.

Card 1/1   -112-

REVERDATTO, V.V., otv. red.; SMYSHLYAYEVA, A.F., red.; STREL'NIKOVA,
    N.D., red.; SMIRNOV, Ye.S., red.; ZHELNOV, I.I., red.

[Transactions dedicated to the 20th anniversary of the
Pharmaceutical Department] Sbornik trudov, posviashchen-
nyi XX-letiiu farmatsevticheskogo fakul'teta. Tomsk,
1962. 203 p.   (MIRA 17:10)

1. Tomsk. Gosudarstvennyy meditsinskiy institut. 2. Zave-
duyushchiy kafedroy obshchey khimii Tomskogo meditsinskogo
instituta (for Strel'nikova). 3. Zaveduyushchiy kafedroy
organicheskoy i fiziko-kolloidnoy khimii Tomskogo meditsin-
skogo instituta (for Zhelnov). 4. Zaveduyushchiy kafedroy
farmatsevticheskoy i sudebnoy khimii Tomskogo meditsinskogo
instituta (for Smirnov).

S/182/60/000/012/009/010
A161/A030

AUTHORS: Rybatskiy, V.V., Strel'nikova, N.I.

TITLE;   Stamping Large-Diameter Bottoms From Stainless Steel

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No. 12, pp. 36-38

TEXT: The Dnepropetrovskiy zavod metallurgicheskogo oborudovaniya
(Dnepropetrovsk Metallurgical Equipment Plant) has started stamping vessel
bottoms 3024 mm in diameter and 12 mm thickness from stainless 1X18H9T
(1Khl8N9T) steel. The special 2,500-ton press has insufficient space be-
tween columns to stamp whole bottoms, therefore, they are stamped in halves
and welded, as is practiced at Dneprodzerzhinskiy zavod im. Dzerzhinskogo
(Dneprodzerzhinsk Plant im. Dzerzhinskiy) with carbon steel bottoms, with
the difference that a fixing shank (Fig.2) is used on the blank. The
shank eliminates the necessity of a large allowance on the straight edge
of the bottom half (for the blank is not fixed in the bottom die, and it
can shift too far under the punch). The proper shank length is 1/3 ÷ 1/4 of
the blank radius, and it must be of the same metal as the blank body; the

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S/182/60/000/012/009/010
A161/A030

Stamping Large-Diameter Bottoms From Stainless Steel

machining allowance can be reduced to only 30-40 mm when the shank is used.
Blanks are cut as shown (Fig. 3) in two different ways depending on the
sheet width (a_1 - machining allowance; b_1 width to which the allowance a_1
spreads in stamping the die). The dimension b_1 is calculated as in the
following: The blank diameter is calculated first as equal to the diameter
of ready stamping (or calculated by the volumes), and then the diameter of
the unflanged bottom D_1 (Fig. 4) is determined with the formula

$$D_1 = 2r \sin \frac{\varphi}{2}$$

and thereafter

$$b_1 = 0.7\pi \frac{D_1 - D_2}{2}$$

This applies to sheet thickness from 12 to 20 mm. Drawings of the special
die and punch are included (Fig. 5 and 6). The two rows of holes, d and d_1
are for removal of stampings by inserting 25-30 mm diameter pins, and for
the outlet of air during stamping. Stampings are pulled out of the die

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S/182/60/000/012/009/010
A161/A030

Stamping Large-Diameter Bottoms From Stainless Steel

on two chains spread with a distance rod; the chains are attached to the crane hook with one end by means of a ring, and with the other end to hooks inserted into lugs on the stamping. Blanks are heated to 1,000-1,100°C in view of high heat conductivity of 1Kh18N9T steel and its tendency to become susceptible to intercrystalline corrosion in the 500-700° interval; they cool down to 800-900° to the moment of deformation. No heat treatment of stampings is necessary when such heating is used . There are 7 figures.

Fig. 2 - the stamping shank; cross hatched
area - the machining allowance.
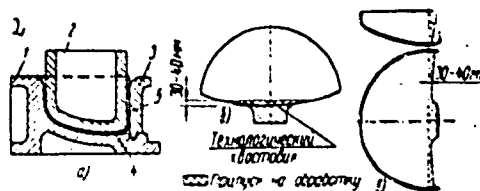
Card 3/ 6

STREL'NIKOVA, N.I.

New and rare diatoms from Paleogene sediments of the Ob'Pur
interfluve. Bot. mat. Otd. spor. rast. 15:39-41 Ja '62.
(MIRA 15:10)

    (Ob' Valley—Diatoms, Fossil)
      (Pur Valley (Tyumen' Province)—Diatoms, Fossil)